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ABSTRACT

Intended as a resource for developing individualized education programs (IEPs) for gifted students, the manual lists annual goals and terminal behaviors for cognitive and affective development. Goals and behaviors coded to expedite the IEP process are set forth for four cognitive areas (subtopics in parentheses): independent study (research, problem solving, organization); creativity (fluency, flexibility, originality, elaboration); critical thinking (analysis, synthesis, evaluation); and communication (verbal, nonverbal, interpretive, interpersonal, and listening). The affective section lists goals and behaviors for personal development (self concept, coping with failure, and critical acceptance). (CL)

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GEMINI

Gifted Education Manual for Individualizing Networks of Instruction

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Warmest thanks are also offered to Joan Cocozza, without whose typing and editorial assistance this manual could not have been completed.

AUTHORS' NOTE

A clover-leaf highway pattern, a close-up of a miniature circuit (see cover) or a cross-section of a beehive all demonstrate the interrelated complexity of an organized system. GEMINI attempts to develop one such system. It will address the special needs and abilities of the gifted student by identifying, differentiating, sequencing and organizing curricular adjustments.

The word GEMINI (the twin star), upon which our acronym was based, reflects our concern for the two psychological domains, the Affective and the Cognitive. Although educators have the habit of defining these areas separately, no one in reality operates in an either-or fashion. Your affect continually interacts with and thereby stimulates or inhibits your cognitive processes. To deal with one domain and ignore the other assumes an incomplete theory of intelligence. In GEMINI, the separation of domains only indicates their direction of emphasis, not a mutual exclusion. The gifted student needs specialized guidance in both areas.

We were also careful to select words, as part of the acronym GEMINI, which would make obvious the intentions of our manual. GEMINI was developed specifically with educators of the

gifted in mind. It reflects our belief that the significantly substantial differences which exist between average ability and academically gifted children warrant specially trained personnel, a differentiated curriculum and procedures for recognizing and implementing programs geared towards individual students.

The networks which are contained in GEMINI are part of an arrangement of interconnected instructional areas developed to facilitate the process of individualization. After establishing the current functioning of a particular gifted student, these networks and the behaviors which accompany them can be assessed and selected for appropriate use. They can provide the basis for the individualized programs to which gifted students are philosophically and legally entitled.

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INTRODUCTION

Individualizing education, that is, meeting the special needs of each student, has long been a goal of educators. The Special Education Standards of Pennsylvania have recently been extended to include the academically gifted. This has had far-reaching effects on those professionals who assume responsibility for the education of the exceptionally bright child. They are now required to provide each student with an Individualized Education Program (IEP).

WHAT IS AN IEP?

An IEP is an indication of the modifications in a child's curriculum which are necessary to address the special needs and/or abilities of the gifted student. As required by law, it must include a statement of the child's present educational levels. These levels should take into consideration the way in which the student is functioning in both the Cognitive and Affective Domains. It is from this section that annual goals, broad statements of progress that the child will make in the course of one year, will be developed. In order to implement these annual goals, more specific steps called short-term objectives

must be written. These objectives need to include a behavior, a condition under which the student will operate, and a criterion of evaluation. Other components of the IEP are a statement of the specific special education program, dates of initiation and duration, related services and an indication of the extent to which the child will be integrated into regular education.

WHO IS INVOLVED?

The IEP must be developed by a multi-disciplinary team consisting minimally of a teacher, a Local Education Agency (LEA) representative, a member of the evaluation team and the parents. The input from these individuals should provide the varied perspectives necessary to complete the individualized program. However, other resource people, including the student, can and should be considered to complement the aforementioned team.

WHY USE GEMINI?

The annual goals and short-term objectives are the backbone of the IEP. They are the special education program itself. The basis of a quality education program

of any type results from the review and evaluation of a variety of available resources. This manual is meant to act as one such resource. It has identified those areas which research has demonstrated as being important in the development of the gifted child's potential. Annual goals have been provided under each of these areas and behaviors necessary for the achievement of the goals have been listed. A teacher can refer to this manual for many of the ideas which will assist in the development of an appropriate individualized education program for a gifted student.

UNDERSTANDING GEMINI

This document was produced by a committee of four educators who have taught gifted students ranging from kindergarten to the secondary level. The experiences of writing IEPs by the members of the Montgomery County Intermediate Unit Gifted Staff were also considered. Although not all behaviors are applicable to every grade, they were written with a wide spectrum of developmental abilities in mind. The particular strategies which will be employed to accomplish a goal may differ according to the entry level skills of the student.

This manual is divided into five instructional areas, four of which fall into the Cognitive Domain and one into the Affective Domain. An outline of these areas follows this section. Each instructional area contains several annual goals accompanied by a list of terminal behaviors. These terminal behaviors are sequenced in an order logical to the particular nature of each section. This listing, therefore, does not necessarily indicate a hierarchy of importance or difficulty.

It should be noted that each annual goal and terminal behavior is carefully coded. This coding system is consistent throughout the manual. It was devised and included with

an eye towards facilitating the paper-handling of an IEP through typing services, word-processing or computer assistance. The initial letter shows the domain of emphasis:

C Cognitive

A Affective

The two underlined letters refer to instructional areas:

C IS - Independent Study

C CT - Critical Thinking

C Cr - Creativity

C Co - Communication

A PD - Personal Development

Following the letters for the instructional area is a number which indicates a particular annual goal:

C IS 1

C IS 2

Therefore, C IS 2 would refer to the second annual goal under Independent Study in the Cognitive Domain.

Further delineation is given to the terminal behaviors listed. Each behavior carries the code of its domain, instructional area and annual goal, as well as a lower-case letter of its own:

C IS 1a

C IS 1b

C IS 1c

C IS 1d

Lists of conditions and evaluation criteria provided in this manual will be coupled with the terminal behaviors to make a complete short-term objective. These are also given representative symbols.

A decision to use the coding system explained in this manual can expediate the IEP process. The teacher can simply indicate by code whatever domains, instructional areas, annual goals and combinations of terminal behaviors, conditions and criteria s/he wishes to include in an IEP for a particular student. Sample coding sheets and a detailed explanation of their use can be found in the Appendix.

In addition to being a resource manual, GEMINI can also be used to record newly developed goals and behaviors and to indicate any adjustments or refinements in those already listed. Worksheets are provided for this purpose. A teacher can thereby incorporate new ideas into the manual and keep it current with the curricular modifications s/he has developed for the gifted.

NETWORKS OF INSTRUCTION

CODE C — COGNITIVE DOMAIN

C IS	Independent Study	C CT	Critical Thinking
C IS 1	- Research	C CT 1	- Analysis
C IS 2	- Problem Solving	C CT 2	- Synthesis
C IS 3	- Organization	C CT 3	- Evaluation
C Cr	Creativity	C Co	Communication
C Cr 1	- Fluency	C Co 1	- Verbal
C Cr 2	- Flexibility	C Co 2	- Non-Verbal
C Cr 3	- Originality	C Co 3	- Interpretive
C Cr 4	- Elaboration	C Co 4	- Interpersonal
		C Co 5	- Listening

CODE A — AFFECTIVE DOMAIN

A PD	Personal Development
A PD 1	- Self-Concept
A PD 2	- Coping with Failure
A PD 3	- Critical Acceptance

PART ONE

COGNITIVE DOMAIN

COGNITIVE DOMAIN

OVERVIEW

There are three domains comprising the realm of human behavior: Cognitive, Affective and Psychomotor. GEMINI deals specifically with the first two. The third one, Psychomotor, which is the motor-skill area, is more closely related to manipulative talent or athletics and will not be discussed here.

There are two main intentions of this manual. The first is to establish a network of cognitive behaviors which may serve to organize and integrate effectively the experiences of the gifted learner. The second is to provide continuity for the student's educational program.

Cognitive behaviors relate to the development of intellectual abilities and skills. GEMINI has outlined four areas in this regard: Independent Study, Critical Thinking, Creativity and Communication, each with its own introduction. The Cognitive Domain is delineated in this manner for a number of reasons. To begin with, it is held in fairly wide agreement, though not necessarily carried through in educational practice, that society's future will demand individuals who can "think". Many different definitions of the concept "to think" can be accrued. It cannot be denied, though, that whatever form education takes in the years to come, it must facilitate the student's ability to adapt readily to change.

Particular subject areas such as American History or English Literature must then become vehicles through which processes and skills are taught. They may not necessarily be ends in themselves. The amount of information available in our society is already far beyond any one individual's ability to retain. It continues to accumulate and change at an ever-increasing rate. As this base of data grows, the portion of it to be dealt with by the educational system is in question. It seems logical to choose those segments of available information which would ensure the individual's vocational, social and emotional success. However, since it is with limited accuracy that future trends can be predicted, this becomes very difficult if not impossible. Therefore, the gifted students of today must be given skills which will be applicable to a wide variety of situations. The instructional networks which GEMINI has outlined will serve this purpose.

They begin with independence skills which include problem-solving, organization and research. If expected to cope with an ever-changing complex world, the gifted student must learn how to function independently. In conjunction with this, s/he must approach educational, social and personal situations creatively. An individual who is fluent, flexible, elaborative and original in thought or action is much more likely to deal with life in an effective manner. The concept of critical thinking also plays an important part in the gifted student's development. Information will remain static unless it is analyzed, synthesized and evaluated. Training in these higher level processes

helps to generate new avenues of discovery. Finally, no amount of independent, critical and/or creative thinking will serve any purpose unless it can be communicated in some way. GEMINI describes networks of verbal, non-verbal, interpretive, interpersonal and listening skills.

The particular contents through which all the previously mentioned networks may be developed are flexible and can vary from situation to situation. This is important because GEMINI's format is an acurricular one. Each teacher, no matter what the discipline, can select and appropriately apply the behaviors in this manual to gifted students. The outcomes or objectives are therefore not tied to specific subjects but are meant to encompass the more expansive area - the Cognitive Domain.

INDEPENDENT STUDY

INTRODUCTION

One of the highest priorities in today's thinking on gifted education is to train students to tackle and solve problems independently. Consequently, the concept of an "independent study" has become an integral part of many programs devised for gifted students. In order to complete an independent study successfully, the student must acquire certain basic skills and assume responsibility for self-organization and work habits. "Independent" implies a freedom to think or to act with minimal outside assistance. The student is therefore responsible for all the necessary work involved, including an evaluation of both progress and end product. This transfer of responsibility removes the student from constant teacher guidance and allows the student to establish a schedule of time and activities (Glasser, 1971). It cannot be assumed that students automatically learn these skills in a regular classroom situation.

GEMINI attempts to specify the skills necessary to achieve independence. They have been classified into three groups: research, problem-solving and organization. Research skills include efficient use of a library, compilation and evaluation of data, acquisition of data from sources outside the school and development of a final presentation.

Problem-solving involves identifying and analyzing a problem; considering, projecting and

evaluating a variety of solutions or outcomes; and applying problem-solving techniques to real and contrived situations. In all these aspects of problem-solving, the teacher acts as a facilitator until the student understands and independently applies the problem-solving techniques to a wide variety of problem situations. In order to solve any problem, the student must first lay out a plan. As many ideas as possible should be enumerated and all the ideas suggested should be considered carefully. The problem should then be reconsidered from many different viewpoints, taking care not to ignore obvious clues, and bearing in mind any aspects which have not been explained. Finally, all the possible solutions should be evaluated until the best or most plausible solution is discerned. Once a student understands a problem-solving method, other procedures can be developed and subsequently used to tackle different problems using a variety of strategies.

The third group of skills necessary for the successful completion of an independent study consists of organization skills. This is where the student learns how to organize time and activities to the best advantage. It involves setting and achieving realistic goals within an achievable work schedule, learning to apply oneself effectively and responsibly to the task at hand and understanding differences among learning styles both in oneself and in others.

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL	CODE	TERMINAL BEHAVIOR
C IS 1	(STUDENT'S NAME) will develop research skills. (Research)	C IS 1a ...	will locate references appropriate for a selected topic
		C IS 1b ...	will become familiar with periodicals relating to a selected topic
		C IS 1c ...	will use different kinds of reliable sources within a library
		C IS 1d ...	will utilize references appropriate for a selected topic
		C IS 1e ...	will demonstrate the use of a periodical guide by citing different sources
		C IS 1f ...	will use a library independently and competently
		C IS 1g ...	will appropriately employ new vocabulary/ terminology acquired during research

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL	CODE		TERMINAL BEHAVIOR
C IS 1	(STUDENT'S NAME) will develop research skills. (Research)	C IS 1h	...	will document information provided in a research study
		C IS 1i	...	will become familiar with community resources relating to a selected topic (e.g. field trips, interviews, surveys, telephone contacts, letters, tape-recordings
		C IS 1j	...	will determine which individuals may be of assistance in researching a selected topic
		C IS 1k	...	will plan personal interviews
		C IS 1l	...	will conduct personal interviews
		C IS 1m	...	will assess the results of consulting an expert from the field of interest
		C IS 1n	...	will evaluate the outcome and value of the use of community resources

WORKSHEET

DIRECTIONS:

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 1	(STUDENT'S NAME) will develop research skills. (Research)

CODE		TERMINAL BEHAVIOR
C IS 1o	...	will formulate a plan for organizing the research and presentation of a selected topic, including: (i) topic to be studied (ii) materials needed (iii) time schedule (iv) presentation outline
C IS 1p	...	will develop a research outline for the selected topic
C IS 1q	...	will gather facts appropriate to a selected subject or question
C IS 1r	...	will paraphrase information to be used while studying a selected topic
C IS 1s	...	will take notes effectively
C IS 1t	...	will collect data as supportive evidence or in answer to a question

WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 1	(STUDENT'S NAME) will develop research skills. (Research)

CODE		TERMINAL BEHAVIOR
C IS 1u	...	will organize logically information collected
C IS 1v	...	will validate data collected
C IS 1w	...	will propose ways of testing hypotheses
C IS 1x	...	will set up a controlled experiment which includes hypotheses, rules of procedure, observations and conclusions
C IS 1y	...	will keep records of observations, readings and interviews
C IS 1z	...	will modify hypotheses as a result of new evidence
C IS 1aa	...	will compare predictions with collected data

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 1	(STUDENT'S NAME) will develop research skills. (Research)

CODE	TERMINAL BEHAVIOR
C IS 1bb ...	will experiment with and manipulate materials relevant to a selected topic
C IS 1cc ...	will recognize and combine the necessary elements of research
C IS 1dd ...	will present information collected with clarity
C IS 1ee ...	will become familiar with audio-visual aids relating to a selected topic
C IS 1ff ...	will develop audio-visual aids illustrative of a selected topic
C IS 1gg ...	will design an original model of a system, based upon a study of various existing systems
C IS 1hh ...	will establish an ongoing procedure for the development and improvement of a final presentation of information gathered during research

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 2	(STUDENT'S NAME) will develop problem-solving skills. (Problem Solving)

CODE		TERMINAL BEHAVIOR
C IS 2a	...	will identify an existing problem for a given situation
C IS 2b	...	will identify different aspects of a problem
C IS 2c	...	will classify the elements of a situation
C IS 2d	...	will sequence or order aspects of a problem
C IS 2e	...	will recognize divergence within a problem
C IS 2f	...	will generate a variety of solutions to real and contrived problem situations
C IS 2g	...	will consider/test possible solutions to an identified problem

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 2	(STUDENT'S NAME) will develop problem-solving skills. (Problem Solving)

CODE		TERMINAL BEHAVIOR
C IS 2h	...	will recognize that there may be more than one solution to a given problem
C IS 2i	...	will realize that it is often necessary to detach oneself from a problem in order to solve it
C IS 2j	...	will judge the best solution to a problem
C IS 2k	...	will evaluate the solution implemented and its possible consequences
C IS 2l	...	will implement the solution considered to be best
C IS 2m	...	will employ a logical system of trial and error when appropriate
C IS 2n	...	will capitalize upon the strengths and/or talents of others

WORKSHEET

DIRECTIONS:

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 2	(STUDENT'S NAME) will develop problem-solving skills. (Problem Solving)

CODE		TERMINAL BEHAVIOR
C IS 2o	...	will draw upon own experience in a problem situation
C IS 2p	...	will apply available information about the environment to deal with problems
C IS 2q	...	will apply a problem-solving method to personal problems
C IS 2r	...	will apply definitions/relationships/ theories/theorems to solving problems
C IS 2s	...	will learn a problem-solving process
C IS 2t	...	will apply a problem-solving process to group or individual situations

WORKSHEET

DIRECTIONS:

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 3	(STUDENT'S NAME) will develop self-organizational skills. (Organization)

CODE		TERMINAL BEHAVIOR
C IS 3a	...	will outline the ultimate goal for an activity
C IS 3b	...	will establish realistic schedules for work to be completed
C IS 3c	...	will develop an understanding of the requirements and skills necessary to complete a task
C IS 3d	...	will establish a logical work sequence
C IS 3e	...	will adhere to established schedules
C IS 3f	...	will employ working time to its best advantage
C IS 3g	...	will develop a balance between work and relaxation

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 3	(STUDENT'S NAME) will develop self-organizational skills. (Organization)

CODE		TERMINAL BEHAVIOR
C IS 3h	...	will extend the powers of concentration
C IS 3i	...	will persevere in activities
C IS 3j	...	will show evidence of task commitment
C IS 3k	...	will demonstrate a responsibility for own actions and opinions
C IS 3l	...	will exhibit an awareness of one's need to be independent in thought and action
C IS 3m	...	will recognize the constraints acting upon a particular activity
C IS 3n	...	will establish a set of expectations for a particular task
C IS 3o	...	will differentiate between achievable and non-achievable goals

WORKSHEET

DIRECTIONS:

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Independent Study

CODE	ANNUAL GOAL
C IS 3	(STUDENT'S NAME) will develop self-organizational skills. (Organization)

CODE		TERMINAL BEHAVIOR
C IS 3p	...	will recognize the effectiveness of own particular learning/working style
C IS 3q	...	will recognize the differences in the learning styles and work habits of others
C IS 3r	...	will appreciate the differences in the learning styles and work habits of others
C IS 3s	...	will modify own learning or working style as appropriate

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES

ADDITIONS

CONDITIONS

In order to design a complete short-term objective, the condition under which the student will operate should be specified. The condition establishes operational parameters for the student and assists the teacher in individualizing the educational program.

The forms which these conditions take may be many and varied. They can set restrictions or indicate allowances, either of which can pertain to time, materials or setting. The conditions suggested in GEMINI are representative of those most commonly used but certainly are not all inclusive.

CONDITIONS

ASSIGN ONE OF THE FOLLOWING "CONDITIONS" TO THE APPROPRIATE TERMINAL BEHAVIOR:

1 ... without assistance

2 ... while working with a peer

3 ... while working in a group

4 ... while using the library

5 ... while using community resources

6 ... with teacher direction

7 ... during class discussion

8 ... during a presentation to class

9 ... using audio-visual materials

10 ... within _____ (period of time)

11 ... no condition necessary

CRITERIA

A complete short-term objective requires evaluation criteria of the student's behavior. If a teacher has a child working in the areas of Independent Study, Critical Thinking, Creativity, Communication and Personal Development, s/he is confronted with the task of designing criteria which will objectively evaluate a behavior the basis of which lies in the abstract.

If a child is working on the levels of knowledge, comprehension and application as described by Bloom (1956), it is not difficult to evaluate these behaviors. Identifying, listing, recalling, applying, using and showing are examples of behaviors which fall into the first three taxonomy levels and are easily assessed with an accuracy level. However, behaviors such as predicting, assessing, criticizing, generating and justifying, which are higher level thinking skills, cannot be evaluated by similar methods. It would be inappropriate to attempt to attach a percentage of accuracy to a skill the inherent properties of which make it too complex to evaluate in this way.

The alternatives that educators must find in order to evaluate the work of the gifted pupil may take many different forms. Rating scales can be constructed, student journals kept, peer evaluations employed, teacher observations logged and self-evaluations designed. These instruments help to judge objectively the performance of the student's work. Some of them may also serve as guidelines for the pupil to follow.

It is also questionable whether it is valid for the educator alone to assess the student's work. A variety of individuals can and should become involved in this process. Teachers, the student, peers, community experts and librarians all have the potential for contributing to the evaluation of the student's work. Furthermore, since the concept of education includes experience both within and outside the school environment, the gifted student's performance should not be assessed by the conventional means of a paper and pencil test alone. Criteria of evaluation can be many and varied as long as they are appropriate to the nature and complexity of the behavior.

CRITERIA

ASSIGN ONE OF THE FOLLOWING "CRITERIA" TO THE APPROPRIATE TERMINAL BEHAVIOR:

... with success evidenced through

A ... teacher evaluation

B ... self-evaluation

C ... peer evaluation

D ... teacher and student evaluation

E ... teacher and peer evaluation

F ... teacher, student and peer evaluation

G ... peer and self-evaluation

H ... teacher observation

I ... following the teacher's guidelines

J ... class participation

K ... a student log

L ... application to other activities

M ... a rating scale

N ... external guidelines of _____

O ... use of criteria from internal and external sources

P ... teacher-constructed test with ___% accuracy

Q ... standardized test with ___% accuracy

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CRITICAL THINKING

INTRODUCTION

Benjamin Bloom's (1956) taxonomy of higher cognitive skills has been adopted as the basis for GEMINI's section on critical thinking. If the gifted child is to realize full potential, training is necessary to encourage more creative and challenging thinking, that is, analysis, synthesis and evaluation. These have here been categorized under "Critical Thinking". Although the emphasis for a gifted child's educational program lies in these more advanced levels, it must be understood that in order to analyze, synthesize and evaluate, the student must first be able to acquire knowledge, show comprehension of it and demonstrate application (the first three levels of Bloom's taxonomy).

Analysis involves identification of parts, perception of relationships among parts and recognition of principles of organization. In practical classroom terms the student might be required to classify, deduce, infer, compare or contrast.

Synthesis refers to putting components of materials together in a new way to form a unique whole. The student might be expected to design a research proposal, devise an original method of classification or create a new form of communication; the emphases in this area are on creativity and originality in thinking, in products and in presentations.

Evaluation involves judging the value of ideas, works, solutions, methods or materials using a set of criteria which are developed using external and/or internal guidelines. Since elements from all the other levels in the taxonomy are involved in evaluation, it is therefore on the highest learning plateau.

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 1	(STUDENT'S NAME) will develop the skill of analyzing. (Analysis)

CODE		TERMINAL BEHAVIOR
C CT 1a	...	will break down a whole into its component parts
C CT 1b	...	will differentiate between observations and inferences
C CT 1c	...	will categorize statements of propaganda (e.g. glittering generalities, irrelevant appeals, testimonials, mud slinging, card stacking)
C CT 1d	...	will generate various ways of categorizing information and/or objects in accordance with logically specified characteristics
C CT 1e	...	will classify information into logical categories
C CT 1f	...	will provide evidence to support the formulation of established categories

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 1	(STUDENT'S NAME) will develop the skill of analyzing. (Analysis)

CODE		TERMINAL BEHAVIOR
C CT 1g	...	will define areas of differences for the purpose of classification
C CT 1h	...	will define areas of commonality for the purpose of classification
C CT 1i	...	will differentiate cause and effect from other sequential relationships
C CT 1j	...	will demonstrate the relationship between aspects and ideas
C CT 1k	...	will prove a particular idea, principle or generalization
C CT 1l	...	will grasp the main idea of presented information
C CT 1m	...	will differentiate between relevant and irrelevant points

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 1	(STUDENT'S NAME) will develop the skill of analyzing. (Analysis)

CODE		TERMINAL BEHAVIOR
C CT 1n	...	will explore complex concepts or problems
C CT 1o	...	will interpret illustrative data (e.g. maps, tables, graphs, diagrams, legends)
C CT 1p	...	will reveal discrepancies or gaps in information
C CT 1q	...	will deduce information based upon given or discovered general principles
C CT 1r	...	will detect logical fallacies in information and/or arguments
C CT 1s	...	will infer the point of view or bias of a particular source
C CT 1t	...	will draw appropriate conclusions based upon an analysis of information available

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WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 1	(STUDENT'S NAME) will develop the skill of analyzing. (Analysis)

CODE		TERMINAL BEHAVIOR
C CT 1u	...	will differentiate between logical and illogical arguments
C CT 1v	...	will distinguish conclusions from the statements which support them
C CT 1w	...	will identify the motives of an author or speaker
C CT 1x	...	will differentiate between implied and stated ideas
C CT 1y	...	will organize the procedures necessary for completing a given task
C CT 1z	...	will develop an outline relating to a particular idea or set of data
C CT 1aa	...	will speculate upon the results of a particular action or decision

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 1	(STUDENT'S NAME) will develop the skill of analyzing. (Analysis)

CODE	TERMINAL BEHAVIOR
C CT 1bb ...	will outline the changes which have occurred as a result of a particular action or decision
C CT 1cc ...	will formulate a generalization or principle based upon the information gathered or available on a particular topic
C CT 1dd ...	will recognize the interrelationships of ideas and/or data
C CT 1ee ...	will pose questions which seek to clarify information, stimulate further examination and/or generate new ideas

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WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 2	(STUDENT'S NAME) will develop the skill of synthesizing. (Synthesis)

CODE		TERMINAL BEHAVIOR
C CT 2a	...	will integrate ideas from different areas
C CT 2b	...	will modify information and/or material to result in a unique product
C CT 2c	...	will generate a list of consequences in relation to given data
C CT 2d	...	will translate information from one form into another
C CT 2e	...	will transfer concepts, principles and generalizations from one situation to another
C CT 2f	...	will make logical generalizations based upon a synthesis of available information
C CT 2g	...	will recognize and combine the necessary elements of research

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 2	(STUDENT'S NAME) will develop the skill of synthesizing. (Synthesis)

CODE		TERMINAL BEHAVIOR
C CT 2h	...	will combine concepts, principles and generalizations
C CT 2i	...	will discover a new pattern of ideas by drawing on information from past and present experiences
C CT 2j	...	will design an original model of a system based upon a study of various existing systems
C CT 2k	...	will develop a new pattern of ideas based upon a restructuring of existing ideas
C CT 2l	...	will formulate hypotheses based upon collected data
C CT 2m	...	will develop a theory or principle of operation about a particular area of concern

WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 2	(STUDENT'S NAME) will develop the skill of synthesizing. (Synthesis)

CODE		TERMINAL BEHAVIOR
C CT 2n	...	will make valid predictions based upon available information
C CT 2o	...	will speculate upon the results of a particular action or decision
C CT 2p	...	will speculate upon the causes of problems
C CT 2q	...	will develop and present an extemporaneous speech

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WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 3	(STUDENT'S NAME) will develop the skill of evaluating. (Evaluation)

CODE		TERMINAL BEHAVIOR
C CT 3a	...	will develop standards to evaluate the quality of the work of self or others
C CT 3b	...	will apply self-developed standards to everyday events
C CT 3c	...	will appraise the quality of work completed by self or others in the following areas: (i) Organization (ii) Content (iii) Creativity (iv) Effort (v) Appropriateness for Ability (vi) Alternatives for Further Study
C CT 3d	...	will assess the organization of information

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WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 3	(STUDENT'S NAME) will develop the skill of evaluating. (Evaluation)

CODE		TERMINAL BEHAVIOR
C CT 3e	...	will assess the content of information
C CT 3f	...	will assess the desirability of an action/ decision
C CT 3g	...	will assess the effectiveness of an action/ decision
C CT 3h	...	will evaluate all alternatives to select the best in a given situation
C CT 3i	...	will judge the validity of ideas
C CT 3j	...	will prove or disprove a statement by presenting evidence
C CT 3k	...	will evaluate personal decisions based on available data
C CT 3l	...	will weigh different ideas or points of view

WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Critical Thinking

CODE	ANNUAL GOAL
C CT 3	(STUDENT'S NAME) will develop the skill of evaluating. (Evaluation)

CODE		TERMINAL BEHAVIOR
C CT 3m	...	will differentiate between fact and opinion, offering valid justification for either
C CT 3n	...	will discriminate between constructive and destructive criticism
C CT 3o	...	will offer constructive criticism
C CT 3p	...	will support offered criticism with fact and logic
C CT 3q	...	will evaluate both sides of a paradoxical idea or situation
C CT 3r	...	will assess the accuracy with which conclusions are supported
C CT 3s	...	will evaluate the impact of a speculative situation

WORKSHEET

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NOTES	ADDITIONS

CONDITIONS

ASSIGN ONE OF THE FOLLOWING "CONDITIONS" TO THE APPROPRIATE TERMINAL BEHAVIOR:

1 ... without assistance

2 ... while working with a peer

3 ... while working in a group

4 ... while using the library

5 ... while using community resources

6 ... with teacher direction

7 ... during class discussion

8 ... during a presentation to class

9 ... using audio-visual materials

10 ... within _____ (period of time)

11 ... no condition necessary

CRITERIA

ASSIGN ONE OF THE FOLLOWING "CRITERIA" TO THE APPROPRIATE TERMINAL BEHAVIOR:

... with success evidenced through

A ... teacher evaluation

B ... self-evaluation

C ... peer evaluation

D ... teacher and student evaluation

E ... teacher and peer evaluation

F ... teacher, student and peer evaluation

G ... peer and self-evaluation

H ... teacher observation

I ... following the teacher's guidelines

J ... class participation

K ... a student log

L ... application to other activities

M ... a rating scale

N ... external guidelines of _____

O ... use of criteria from internal and external sources

P ... teacher-constructed test with ___% accuracy

Q ... standardized test with ___% accuracy

CREATIVITY

INTRODUCTION

Creativity is a force which has its basis in natural ability but which also depends on the encouragement received from society. It is a resource which mankind cannot afford to ignore. Properly directed, it has served to foster a complex technology, facilitate enormous strides in science and enhance life through the development of the arts. Societies without the foresight to nurture creativity risk stagnation.

The gifted student needs the opportunity to engage in activities which will stimulate creative individuality. Failure to do so can result in either patterns of conformity or of rebellion. Educators must realize that the gifted student cannot hope to reach full potential if the school system fails to create a supportive, non-threatening atmosphere in which creativity can blossom. GEMINI describes the networks which can help gifted students go beyond learning into the realm of thinking.

As defined in this manual, creativity has four facets: fluency, flexibility, originality and elaboration. Fluency deals with the capacity to generate a wide variety of different kinds of ideas. The fluent thinker serves as the impetus for experimenting with new concepts. The flexible student has the ability to move easily from one thought to another and to consider information from

different perspectives. Changes in trains of thought or the introduction of new ideas are easy transitions for the flexible thinker. Originality has to do with the production of new or unique ideas. The novelty of the thought reflects the ingenuity of the thinker. Ideas are original if they extend beyond the experience of the individual. The final aspect of creativity, elaboration, is embellishing or adding details to ideas or products. Individuals who can elaborate will fill in gaps or provide the finishing touches.

The behaviors just described form the composite of a creative individual. However, being gifted does not necessarily assure that a student will exhibit the ability to be fluent, flexible, original and elaborative in thinking. A continual effort must be made to incorporate creative objectives into the student's curriculum, for the gifted mind restricted by conventionality cannot effectively maximize its potential.

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 1	(STUDENT'S NAME) will generate numerous different ideas. (Fluency)

CODE		TERMINAL BEHAVIOR
C Cr 1a	...	will develop the ability to use brainstorming techniques
C Cr 1b	...	will generate a variety of alternative solutions to real and contrived problem situations
C Cr 1c	...	will formulate a list of attributes which pertain to a particular person, place or thing
C Cr 1d	...	will formulate a list of pros and cons pertaining to a particular idea or concept
C Cr 1e	...	will develop a list of consequences which would result from a given action
C Cr 1f	...	will formulate a variety of contradictions/ paradoxes pertaining to a given concept or idea

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 1	(STUDENT'S NAME) will generate numerous different ideas. (Fluency)

CODE		TERMINAL BEHAVIOR
C Cr 1g	...	will develop a list of possibilities which would result from a hypothetical situation
C Cr 1h	...	will formulate a variety of appropriate questions relating to a particular issue
C Cr 1i	...	will formulate a list of questions which one would like answered about a particular topic
C Cr 1j	...	will accept the possibility of more than one right answer
C Cr 1k	...	will be aware of the different connotations held by the same words or phrases
C Cr 1l	...	will expand one's vocabulary
C Cr 1m	...	will develop written fluency (i.e. a flow of written ideas)

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 1	(STUDENT'S NAME) will generate numerous different ideas. (Fluency)

CODE		TERMINAL BEHAVIOR
C Cr 1n	...	will develop expressional fluency by using: (i) similes, (ii) hyperbole, (iii) metaphors, (iv) analogies
C Cr 1o	...	will recognize in what instances brainstorming is the most effective technique
C Cr 1p	...	will understand the advantages of brainstorming

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WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 2	(STUDENT'S NAME) will display versatility in thought. (Flexibility)

CODE		TERMINAL BEHAVIOR
C Cr 2a	...	will generate a variety of approaches to arrive at a given solution
C Cr 2b	...	will consider new and different approaches to a given problem
C Cr 2c	...	will use the process of minification to change an idea or concept
C Cr 2d	...	will use the process of magnification to change an idea or concept
C Cr 2e	...	will be aware of the adaptability of a single person, place or thing to many different kinds of uses
C Cr 2f	...	will generate many different consequences for a given decision or action

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WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

E	ANNUAL GOAL	CODE	TERMINAL BEHAVIOR
r 2	(STUDENT'S NAME) will display versatility in thought. (Flexibility)	C Cr 2g ...	will generate a variety of alternative solutions to real and contrived problem situations
		C Cr 2h ...	will develop alternative formats for presenting information
		C Cr 2i ...	will develop confidence to change habits when appropriate
		C Cr 2j ...	will explore unexplained or unknown concepts
		C Cr 2k ...	will interpret information in a variety of ways
		C Cr 2l ...	will apply a principle or concept to areas other than the one in which it was introduced

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 2	(STUDENT'S NAME) will display versatility in thought. (Flexibility)

CODE		TERMINAL BEHAVIOR
C Cr 2m	...	will develop an ability to shift approaches or change directions in own thinking
C Cr 2n	...	will adjust to a different point of view or idea
C Cr 2o	...	will play the "devil's advocate"

WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 3	(STUDENT'S NAME) will generate unique ideas. (Originality)

CODE		TERMINAL BEHAVIOR
C Cr 3a	...	will combine common things in unusual ways
C Cr 3b	...	will generate unusual responses to a given problem
C Cr 3c	...	will generate unusual answers to questions when appropriate
C Cr 3d	...	will create a specified product or idea by combining new and unusual ideas
C Cr 3e	...	will use the process of minification to change a concept or idea
C Cr 3f	...	will use the process of magnification to change a concept or idea
C Cr 3g	...	will use familiar objects differently from their intended purpose

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 3	(STUDENT'S NAME) will generate unique ideas. (Originality)

CODE		TERMINAL BEHAVIOR
C Cr 3h	...	will create a unique product or idea by combining unusual ideas and materials
C Cr 3i	...	will reverse the question-answer process by formulating questions from a given set of answers
C Cr 3j	...	will question an old method of operation to lead to a new one
C Cr 3k	...	will relate unconnected information to develop a new idea or concept
C Cr 3l	...	will recognize when an unusual solution is applicable or practical
C Cr 3m	...	will formulate a new order to be imposed upon an existing idea or concept

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WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 4	(STUDENT'S NAME) will expand upon both innovative and conventional ideas. (Elaboration)

CODE		TERMINAL BEHAVIOR
C Cr 4a	...	will use familiar objects differently from their intended purpose
C Cr 4b	...	will combine common things in unusual ways
C Cr 4c	...	will provide detail with accuracy and completeness
C Cr 4d	...	will provide detail to enhance meaning or understanding
C Cr 4e	...	will embellish an idea, concept or question
C Cr 4f	...	will embellish an object or idea to make it more interesting or stimulating to others
C Cr 4g	...	will improve upon an idea or concept by modifying it

WORKSHEET

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Creativity

CODE	ANNUAL GOAL
C Cr 4	(STUDENT'S NAME) will expand upon both innovative and conventional ideas. (Elaboration)

CODE		TERMINAL BEHAVIOR
C Cr 4h	...	will fill in gaps in information
C Cr 4i	...	will modify an idea, question or concept
C Cr 4j	...	will stretch or extend an idea or concept
C Cr 4k	...	will describe a situation as it may exist in the future after examining a contemporary situation
C Cr 4l	...	will realize that it is often necessary to detach oneself from a problem in order to solve it

WORKSHEET

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NOTES

ADDITIONS

CONDITIONS

ASSIGN ONE OF THE FOLLOWING "CONDITIONS" TO THE APPROPRIATE TERMINAL BEHAVIOR:

1 ... without assistance

2 ... while working with a peer

3 ... while working in a group

4 ... while using the library

5 ... while using community resources

6 ... with teacher direction

7 ... during class discussion

8 ... during a presentation to class

9 ... using audio-visual materials

10 ... within _____ (period of time)

11 ... no condition necessary

CRITERIA

ASSIGN ONE OF THE FOLLOWING "CRITERIA" TO THE APPROPRIATE TERMINAL BEHAVIOR:

... with success evidenced through

A ... teacher evaluation

B ... self-evaluation

C ... peer evaluation

D ... teacher and student evaluation

E ... teacher and peer evaluation

F ... teacher, student and peer evaluation

G ... peer and self-evaluation

H ... teacher observation

I ... following the teacher's guidelines

J ... class participation

K ... a student log

L ... application to other activities

M ... a rating scale

N ... external guidelines of _____

O ... use of criteria from internal and external sources

P ... teacher-constructed test with ___% accuracy

Q ... standardized test with ___% accuracy

COMMUNICATION

INTRODUCTION

In order to communicate effectively, the precise meaning of an idea must be transmitted from the sender to the receiver. Communication of ideas can be expressed through the use of words, gestures, body movements or art forms. For the full meaning to be understood, the receiver must be able to listen attentively and interpret accurately.

In this section, GEMINI has attempted to cover the areas of communication skills which are involved in the successful transference and interpretation of ideas. They have been divided into the following categories: verbal, non-verbal, interpretive, interpersonal and listening.

The areas of verbal and non-verbal communication are concerned largely with the communicator. Verbal skills, which are here defined to include any behavior involving the spoken or written word, should stress accuracy and clarity. The non-verbal area aims to include the transmission of ideas and feelings through art, music, kinetics or audio-visual aids. Interpretive and listening skills rely on the listener's or viewer's ability to receive and interpret information. Interpersonal communication deals with the interaction skills employed by individuals during the communication process. Evaluation and techniques of persuasion are included in all areas of the networks' behaviors.

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 1	(STUDENT'S NAME) will develop verbal communication skills. (Verbal)

CODE		TERMINAL BEHAVIOR
C Co 1a	...	will recognize the importance of accuracy in verbal descriptions
C Co 1b	...	will appropriately communicate with others of different age and ability levels
C Co 1c	...	will properly sequence the various components of a communication
C Co 1d	...	will differentiate between appropriate and inappropriate discussion
C Co 1e	...	will clarify an idea by providing an illustration or example
C Co 1f	...	will evaluate feedback to determine accuracy of communication
C Co 1g	...	will demonstrate awareness of verbal techniques used to influence thinking (e.g. glittering generalities, irrelevant appeals, testimonials, mud-slinging, card stacking)

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 1	(STUDENT'S NAME) will develop verbal communication skills. (Verbal)

CODE		TERMINAL BEHAVIOR
C Co 1h	...	will develop and present extemporaneous speeches
C Co 1i	...	will develop public-speaking skills
C Co 1j	...	will transmit ideas and opinions on specified issues
C Co 1k	...	will transmit information acquired through individual research
C Co 1l	...	will differentiate between the following forms of debate: (i) conventional (ii) cross-questioning (iii) direct clash (iv) heckling

WORKSHEET

DIRECTIONS:

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NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL	CODE	TERMINAL BEHAVIOR
C Co 1	(STUDENT'S NAME) will develop verbal communication skills. (Verbal)	C Co 1m ...	will learn and apply the following debating techniques: (i) will formulate an affirmative constructive speech (ii) will formulate a negative constructive speech (iii) will formulate an affirmative rebuttal speech (iv) will formulate a negative rebuttal speech
		C Co 1n ...	will list the responsibilities of the chairman of a debate
		C Co 1o ...	will list questions appropriate for use in debate

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 2	(STUDENT'S NAME) will develop non-verbal skills. (Non-Verbal)

CODE		TERMINAL BEHAVIOR
C Co 2a	...	will effectively express ideas and feelings non-verbally
C Co 2b	...	will evaluate the emotional reaction of others
C Co 2c	...	will compare different non-verbal media
C Co 2d	...	will evaluate the effectiveness of different non-verbal media
C Co 2e	...	will translate verbal communication into another medium
C Co 2f	...	will apply knowledge acquired through non-verbal stimuli (e.g. art, music) to solving problems
C Co 2g	...	will effectively instruct a group of peers with the use of audio-visual aids

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 2	(STUDENT'S NAME) will develop non-verbal skills. (Non-Verbal)

CODE		TERMINAL BEHAVIOR
C Co 2h	...	will recognize unified and balanced relationships in selected works of art
C Co 2i	...	will design an original method of expressing an idea or feeling in three-dimensional form
C Co 2j	...	will design an original method of expressing an idea or dealing in two-dimensional form
C Co 2k	...	will create an artistic form (e.g. architecture, sculpture, painting) in the style of a given period (e.g. Cubism or Impressionism)
C Co 2l	...	will design an original method of expressing an idea or feeling through music
C Co 2m	...	will express feelings and imagination by creating an original work of art after listening to musical stimuli

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 2	(STUDENT'S NAME) will develop non-verbal skills. (Non-Verbal)

CODE		TERMINAL BEHAVIOR
C Co 2n	...	will enhance a presentation with the use of non-verbal forms of expression
C Co 2o	...	will express an idea or emotion through kinetic movement
C Co 2p	...	will develop an original means of self-expression through body movement
C Co 2q	...	will translate kinetic movement into another non-verbal form
C Co 2r	...	will demonstrate awareness of non-verbal techniques used to influence thinking
C Co 2s	...	will employ non-verbal techniques for the purpose of persuasion

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL	CODE	TERMINAL BEHAVIOR
C Co 3	(STUDENT'S NAME) will develop effective interpretive skills. (Interpretive)	C Co 3a ...	will interpret body movements
		C Co 3b ...	will offer a variety of interpretations of verbal forms (e.g. in literature, newspapers, periodicals)
		C Co 3c ...	will offer a variety of interpretations of visual forms (e.g. in paintings, architecture sculpture)
		C Co 3d ...	will offer a variety of interpretations of aural forms (e.g. in music, and in the aural aspects of poetry and drama)
		C Co 3e ...	will translate kinetic communication into another form
		C Co 3f ...	will translate visual communication into another form
		C Co 3g ...	will translate verbal communication into other media

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 3	(STUDENT'S NAME) will develop effective interpretive skills. (Interpretive)

CODE		TERMINAL BEHAVIOR
C Co 3h	...	will differentiate between relevant and irrelevant points
C Co 3i	...	will distinguish between connotative and denotative meanings
C Co 3j	...	will identify the motives of an author or speaker
C Co 3k	...	will consider the ways in which a meaning of a word may change according to the situation
C Co 3l	...	will recognize the meanings of various forms of expression such as, but not limited to: (i) metaphors (ii) similes (iii) symbolism (iv) irony (v) satire (vi) understatement (vii) exaggeration (viii) personification

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 3	(STUDENT'S NAME) will develop effective interpretive skills. (Interpretive)

CODE		TERMINAL BEHAVIOR
C Co 3m	...	will recognize ambiguity of thought or action
C Co 3n	...	will understand that a communication is often open to various interpretations
C Co 3o	...	will compare the different interpretations of a communication offered by others

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 4	(STUDENT'S NAME) will develop interpersonal skills. (Interpersonal)

CODE		TERMINAL BEHAVIOR
C Co 4a	...	will exhibit an awareness of self as a member of various groups (e.g. family, peers, school)
C Co 4b	...	will appropriately contribute to group discussion
C Co 4c	...	will facilitate, verbally and non-verbally, the workings of a dyad or group
C Co 4d	...	will help establish priorities in the group's operation
C Co 4e	...	will contribute towards the attainment of the goals of a particular dyad or group
C Co 4f	...	will analyze the different functions of members of a group
C Co 4g	...	will evaluate the impact of an individual's non-participation

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL GOAL: Communication

CODE	ANNUAL GOAL
C Co 4	(STUDENT'S NAME) will develop interpersonal skills. (Interpersonal)

CODE		TERMINAL BEHAVIOR
C Co 4h	...	will facilitate the input of other group members
C Co 4i	...	will consider the points of view of others
C Co 4j	...	will consider the talents of other(s) within the dyad or group
C Co 4k	...	will capitalize upon the strength and/or talents of others
C Co 4l	...	will differentiate between appropriate and inappropriate discussion
C Co 4m	...	will differentiate between relevant and irrelevant discussion
C Co 4n	...	will effectively bring a discussion back to the point when appropriate

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 4	(STUDENT'S NAME) will develop interpersonal skills. (Interpersonal)

CODE		TERMINAL BEHAVIOR
C Co 4o	...	will effectively change the direction of a discussion when appropriate
C Co 4p	...	will implement rules of courtesy during verbal interaction with others
C Co 4q	...	will effectively bring a discussion to an end when appropriate
C Co 4r	...	will effectively instruct a group of peers
C Co 4s	...	will demonstrate techniques which entertain, inform or motivate individuals

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 5	(STUDENT'S NAME) will develop effective listening skills. (Listening)

CODE		TERMINAL BEHAVIOR
C Co 5a	...	will implement effective body language (e.g. eye contact, posture, gestures)
C Co 5b	...	will evaluate the effectiveness of a communicator's body language
C Co 5c	...	will recognize the effect of a listener's body language upon a communicator
C Co 5d	...	will evaluate the effectiveness of own body language on others
C Co 5e	...	will identify the style and type of a musical composition by listening
C Co 5f	...	will compare and contrast musical compositions of the same and of different types
C Co 5g	...	will evaluate a musical composition

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES

ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 5	(STUDENT'S NAME) will develop effective listening skills. (Listening)

CODE		TERMINAL BEHAVIOR
C Co 5h	...	will evaluate the performance of a musical composition
C Co 5i	...	will express feelings and imagination by creating an original work of art after listening to musical stimuli
C Co 5j	...	will express in visual form reactions to musical compositions
C Co 5k	...	will implement oral directions
C Co 5l	...	will translate verbal communication into other media
C Co 5m	...	will demonstrate understanding by appropriate notetaking while listening
C Co 5n	...	will differentiate between logical and illogical arguments

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES	ADDITIONS

DOMAIN: Cognitive
INSTRUCTIONAL AREA: Communication

CODE	ANNUAL GOAL
C Co 5	(STUDENT'S NAME) will develop effective listening skills. (Listening)

CODE		TERMINAL BEHAVIOR
C Co 5o	...	will distinguish between relevant and irrelevant communication while listening
C Co 5p	...	will demonstrate understanding of rhetorical questions
C Co 5q	...	will pose appropriate questions to show attentiveness and thought while listening

WORKSHEET

DIRECTIONS:

The space provided below labeled "Notes" should be used to indicate any refinements of or reactions to the goals and behaviors which are listed above. In the area labeled "Additions" you can record any Annual Goal or Terminal Behavior which you have developed and which is not found in this manual.

NOTES	ADDITIONS

CONDITIONS

ASSIGN ONE OF THE FOLLOWING "CONDITIONS" TO THE APPROPRIATE TERMINAL BEHAVIOR:

1 ... without assistance

2 ... while working with a peer

3 ... while working in a group

4 ... while using the library

5 ... while using community resources

6 ... with teacher direction

7 ... during class discussion

8 ... during a presentation to class

9 ... using audio-visual materials

10 ... within _____ (period of time)

11 ... no condition necessary

CRITERIA

ASSIGN ONE OF THE FOLLOWING "CRITERIA" TO THE APPROPRIATE TERMINAL BEHAVIOR:

... with success evidenced through

A ... teacher evaluation

B ... self-evaluation

C ... peer evaluation

D ... teacher and student evaluation

E ... teacher and peer evaluation

F ... teacher, student and peer evaluation

G ... peer and self-evaluation

H ... teacher observation

I ... following the teacher's guidelines

J ... class participation

K ... a student log

L ... application to other activities

M ... a rating scale.

N ... external guidelines of _____

O ... use of criteria from internal and external sources

P ... teacher-constructed test with ___ % accuracy

Q ... standardized test with ___ % accuracy

PART TWO

AFFECTIVE DOMAIN

OVERVIEW

The realm of human behavior which encompasses the feelings and emotions has been designated the Affective Domain. The fact that GEMINI, as well as the educational world, treats the Affective Domain as a separate entity from the Cognitive demands re-emphasis of their unity. It is only for the purpose of analysis that these two domains are constantly referred to as maintaining their own existences.

For years, curriculum was developed on the premise that the pursuance of cognitive objectives automatically provided for the acquisition of appropriate affective behaviors. Jacob's (1957) evidence suggested that this might not be so. Instead, both affective and cognitive behaviors were seen to develop as a result of appropriate learning experiences. Krathwohl, Bloom and Masia (1964) further suggested that desired affective behaviors may actually be destroyed, under some conditions, during the attempted development of cognitive behaviors. Instead of a positive correlation between growth in cognitive and affective behavior, they felt that just the opposite was conceivable. The undeniable result is that specific attention must be given to affective development.

Deterrents to the inclusion of affective objectives in education are numerous. An understanding

of these factors will assist in comprehending why, for years, they were excluded from the development of curricula. The criticisms of affective objectives most often cited center around the absence of systematic approaches to measurement. To be sure, evaluation material of student achievement in the Affective Domain is scant. Added to that are the difficulties involved in evaluating affective growth. The lack of immediacy in results of affective objectives conflicts sharply with the expectations of a society which revolves around a system of instant gratification.

Also inherent in the democratic traditions of a society such as ours is the value placed on matters regarded as private. Public acclaim is widely accepted in recognition of achievement, productivity or competence. The same acclaim is not regarded as appropriate when it is concerned with the beliefs, attitudes and personal values held by an individual. Maintenance of the privacy of these values is a right highly cherished and guarded. Since the Affective Domain embraces the feelings and emotions, critics regard it as shaky ground.

It may be true that it is easier to teach and evaluate cognitive objectives. The preservation of personal privacy must also be given serious consideration. Yet to deny the interrelatedness of the intellect and the affect is to leave educators powerless. GEMINI has attempted to keep this unity in focus throughout.

Personal Development has been divided into three skill areas: coping with failure, critical

acceptance and effective self-concept. Throughout the objectives in these areas, such terms as "appreciate", "consider", "accept", "demonstrate" and "understand" are employed. Emphasis is placed on the student's reaction or response to content matter or to the experiences to which s/he is being exposed. Krathwohl, Bloom and Masia (1964) have ordered these responses on an affective continuum which consists of several levels. According to this continuum, the individual progresses from a level at which phenomena are merely perceived to a level of willingness to attend to the phenomena. Next, positive responses to the phenomena are experienced. As the individual progresses from level to level, a conceptualization of personal behaviors and feelings is organized into a structure. The complexity of this structure grows as it is internalized. It is this internalization process which results in the emergence of a value system.

GEMINI, in no way, intends to portray the Affective Domain as a vehicle for developing the value systems of students. Rather, the educator is provided with a variety of milestone behaviors which will enable each student to organize and internalize a personal structure. As individual perceptions filter each of the components of the structure, the product is inevitably unique. These structures will be as varied as the experiences which contribute to their composition. It is this very promise of maintained individuality within a shared environment which points out the true worth of affective objectives in education.

PERSONAL DEVELOPMENT

DOMAIN: Affective
INSTRUCTIONAL AREA: Personal Development

CODE	ANNUAL GOAL
A PD 1	(STUDENT'S NAME) will develop an effective self-concept. (Self-Concept)

CODE		TERMINAL BEHAVIOR
A PD 1a	...	will appreciate own special talents and/or abilities
A PD 1b	...	will appreciate the value of own work/ideas
A PD 1c	...	will share feelings and ideas with others
A PD 1d	...	will assess self-preferences
A PD 1e	...	will set standards and goals appropriate for ability level
A PD 1f	...	will display confidence in relating own personal goals and standards
A PD 1g	...	will develop a belief in one's ability to succeed
A PD 1h	...	will put criticism in its proper perspective

WORKSHEET

DIRECTIONS:

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NOTES	ADDITIONS

DOMAIN: Affective
INSTRUCTIONAL AREA: Personal Development

CODE	ANNUAL GOAL
A PD 1	(STUDENT'S NAME) will develop an effective self-concept. (Self-Concept)

CODE		TERMINAL BEHAVIOR
A PD 1i	...	will put the acceptance of self by others in its proper perspective
A PD 1j	...	will accept the value of constructive discontent within oneself
A PD 1k	...	will develop an attitude of the ability to control one's destiny
A PD 1l	...	will develop an awareness of the effects of surroundings on an individual
A PD 1m	...	will develop a critical appreciation for the environment
A PD 1n	...	will defend one's own rights and individuality
A PD 1o	...	will exhibit an awareness of the need to be independent in thought and action

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Affective
INSTRUCTIONAL AREA: Personal Development

CODE	ANNUAL GOAL
A PD 1	(STUDENT'S NAME) will develop an effective self-concept. (Self-Concept)

CODE		TERMINAL BEHAVIOR
A PD 1p	...	will accept and respect the worth and rights of others
A PD 1q	...	will apply standards of social behavior consistently
A PD 1r	...	will employ standards of social behavior to solve social problems

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Affective
INSTRUCTIONAL AREA: Personal Development

CODE	ANNUAL GOAL
A PD 2	(STUDENT'S NAME) will cope with failure in self and others. (Coping with Failure)

CODE		TERMINAL BEHAVIOR
A PD 2a	...	will accept responsibility for own actions and ideas
A PD 2b	...	will accept the fact that all individuals experience failure
A PD 2c	...	will admit to a mistake or failure
A PD 2d	...	will determine the positive aspects of a mistake or failure
A PD 2e	...	will differentiate between constructive and destructive criticism
A PD 2f	...	will put disapproval from teacher into proper perspective
A PD 2g	...	will put disapproval from classmates into proper perspective

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Affective
INSTRUCTIONAL AREA: Personal Development

CODE	ANNUAL GOAL
A PD 2	(STUDENT'S NAME) will cope with failure in self and others. (Coping with Failure)

CODE		TERMINAL BEHAVIOR
A PD 2h	...	will differentiate between achievable and non-achievable goals
A PD 2i	...	will be willing to try difficult tasks
A PD 2j	...	will offer a variety of conjectures
A PD 2k	...	will be open to the usefulness of unexpected results

WORKSHEET

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NOTES

ADDITIONS

DOMAIN: Affective
INSTRUCTIONAL AREA: Personal Development

CODE	ANNUAL GOAL
A PD 3	(STUDENT'S NAME) will develop an attitude of acceptance based upon critical evaluation. (Critical Acceptance)

CODE		TERMINAL BEHAVIOR
A PD 3a	...	will develop a sensitivity for other people and their feelings
A PD 3b	...	will appreciate the special talents and/or abilities of others
A PD 3c	...	will consider the preferences of others
A PD 3d	...	will tolerate different points of view
A PD 3e	...	will weigh different ideas or points of view
A PD 3f	...	will be sensitive to the effects of own actions upon others
A PD 3g	...	will show a realization of the interdependence of people
A PD 3h	...	will accept constructive criticism from others

WORKSHEET

DIRECTIONS:

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NOTES

ADDITIONS

DOMAIN: Affective
INSTRUCTIONAL AREA: Personal Development

ANNUAL GOAL	CODE	TERMINAL BEHAVIOR
3 (STUDENT'S NAME) will develop an attitude of acceptance based upon critical evaluation. (Critical Acceptance)	A PD 3i ...	will offer constructive criticism
	A PD 3j ...	will empathize with another person's situation
	A PD 3k ...	will understand the necessity for authority figures
	A PD 3l ...	will demonstrate an awareness that respect received must be earned
	A PD 3m ...	will demonstrate an awareness that respect given must be earned
	A PD 3n ...	will accept the fact that all individuals experience failure
	A PD 3o ...	will develop standards of social behavior

WORKSHEET

DIRECTIONS:

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NOTES	ADDITIONS

CONDITIONS

ASSIGN ONE OF THE FOLLOWING "CONDITIONS" TO THE APPROPRIATE TERMINAL BEHAVIOR:

1 ... without assistance

2 ... while working with a peer

3 ... while working in a group

4 ... while using the library

5 ... while using community resources

6 ... with teacher direction

7 ... during class discussion

8 ... during a presentation to class

9 ... using audio-visual materials

10 ... within _____ (period of time)

11 ... no condition necessary

CRITERIA

ASSIGN ONE OF THE FOLLOWING "CRITERIA" TO THE APPROPRIATE TERMINAL BEHAVIOR:

... with success evidenced through

A ... teacher evaluation

B ... self-evaluation

C ... peer evaluation

D ... teacher and student evaluation

E ... teacher and peer evaluation

F ... teacher, student and peer evaluation

G ... peer and self-evaluation

H ... teacher observation

I ... following the teacher's guidelines

J ... class participation

K ... a student log

L ... application to other activities

M ... a rating scale

N ... external guidelines of _____

O ... use of criteria from internal and external sources

P ... teacher-constructed test with ___% accuracy

Q ... standardized test with ___% accuracy

APPENDIX

APPENDIX

The GEMINI coding sheets are designed to be used in conjunction with typing, word-processing or computer assistance. These sheets can facilitate some of the paperwork relating to the IEP process.

Goals, behaviors, conditions and criteria which are selected as appropriate for a particular student can be indicated by their respective codes in the coding boxes. An example of this is given on page 160. Goals, behaviors, conditions or criteria not included in GEMINI can be inserted on lines provided next to the coding boxes. The total number of coding sheets for each individualized education program will vary from student to student.

When a typist, word-processor operator or computer technician is given the coding sheets, the information can be called up either from GEMINI or from the storage bank of the word-processor or computer. A complete explanation of the workings of the latter two systems is beyond the scope of this manual. However, it would behoove educational agencies to investigate further the advantages offered by these systems.

GEMINI CODING SHEET

STUDENT'S NAME: _____

SCHOOL: _____

ANNUAL GOAL	TERMINAL BEHAVIOR	CONDITION	CRITERION
☐ _____	☐ _____	☐ _____	☐ _____
☐ _____	☐ _____	☐ _____	☐ _____
☐ _____	☐ _____	☐ _____	☐ _____
☐ _____	☐ _____	☐ _____	☐ _____

GEMINI CODING SHEET

STUDENT'S NAME: Ronnie Ghotiman

SCHOOL: Dutchland Elementary School

ANNUAL GOAL	TERMINAL BEHAVIOR		CONDITION		CRITERION
A PD 1	A PD 1e	11		L	
A PD 1	A PD 1j	2		F	
A PD 1	A PD 1q		during class meetings		observation of classroom visitors
A PD 2	A PD 2c	3			follow-up discussion with guidance counselor

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